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Patentanmeldung Nr. Patent application No. Demande de brevet n°

00123771.8

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

I.L.C. HATTEN-HECKMAN

DEN HAAG, DEN
THE HAGUE, 15/05/01
LA HAYE, LE

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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

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Armonk, NY 10504
UNITED STATES OF AMERICA

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Titre de l'invention:
Cable identification marking

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D E S C R I P T I O N

Cable Identification Marking

Field of the Invention

The present invention relates to a device for identification marking of cables. In particular, the invention concerns such cables being continuously provided with unambiguous markings at least in their end sections.

The invention also relates to a method for identification marking of cables.

Background of the Invention

In the last few years the amount of cables has increased significantly. Especially in the area of computer and telecommunication devices there has been a drastic increase due to the permanent turn up of new devices and technologies such as new telephone systems, local area networks, etc.

These systems often need miles and miles of electric cable in order to connect devices far away from each other. Such cables are needed to connect, e.g., a master control unit, like a switch or a telephone system, with outlets or the like spread over one or more buildings.

More and more, racks carrying hundreds of connectors are arranged in one single room. In order to be able to find a single connector within this jumble, the cable ends are normally marked. If this is not the case, a cable has to be trailed from one end to the other, what is generally very cumbersome.

For marking cables, the following methods are used today:

- Installation of marking rings carrying letters or numbers

- Installation of a labelled heat-shrinkable sleeve
- Fastening of plastic slips

Thus, US-A-4,579,759 discloses the use of an inscribable cable marking strip comprising a strip of an adhesive tape having a self-adhering bottom side and carrying an inscribable marking section. The beginning of the inscribable marking section is located at a distance from the adjacent front end of the adhesive tape to define an unlettered, transparent starting section of the strip which may be pressed onto the cable without soiling the marking section or smudging the lettering applied to it.

Furthermore, several cable marking systems are known, for instance using codes preprinted on the sleeve or printed on labels glued onto the sleeve or similar systems. A cable marking system is also known by which ring-shaped marking elements are introduced in a recess on the outside of the support.

However, such systems have the disadvantage that they are either very costly or time consuming or that tapes, rings and the like may slip or fall off, so that the marking is no longer discernible.

Therefore, it has been proposed to mark the cable itself. Thus, US-A-4,370,542 describes a method for marking an identification at pre-selected intervals along a length of cable by a laser marking device. However, it is still difficult to find such a marked cable when mounted to a connector and arranged among a multitude of other cables.

Summary of the Invention

It is therefore an object of the present invention to provide a device for identification marking of cables that is easy to handle and allows to easily identify such a cable among others.

It is still another object of the present invention to provide a

method for identification marking of such cables that allows marking without the use of additional equipment.

These and other objects and advantages are achieved by the device disclosed in Claim 1 and the method disclosed in Claim 12.

Advantageous embodiments of the invention are described in the dependent claims.

Brief Description of the Drawings

The invention will hereinafter be described in more detail in connection with the accompanying drawings, in which

Fig. 1 schematically shows a cable that is provided with unambiguous markings at least in its end section;

Fig. 2 schematically depicts the cable of Fig. 1 that is connected to a connector;

Fig. 3A to 3C schematically shows the cable of Fig. 2 in connection with a respective strain relief clamp; and

Fig. 4A to 4C schematically depicts several embodiments of the device according to the invention.

Detailed Description of the Preferred Embodiment

It has to be mentioned that the present invention is not restricted to electric cables but can be used with every cable provided with a strain relief clamp, regardless whether it is used for electricity, fluids, gases, air or other media. Thus, every form of cable can be used such as round, tubular, flat or rectangular cables. However, the invention will be described in the following with respect to an electric cable only.

As can be seen in Fig. 1, a cable 10 is marked with unambiguous markings 12 at least in its end sections 14. This can be done by applying numbers or letters or combinations thereof by means of color printing or laser marking. The number of positions are restricted due to the area of the cable. It is sensible to use numbers or letters having two digits. These markings may be repeated on the whole cable within regular or irregular intervals. It is, however, necessary, that these markings are unambiguous, i.e., they must be able to unequivocally define a special cable or part thereof.

The cable 10 thus marked is now cut such that the marking of interest 16, i.e., the marking that is to define the respective cable or part thereof, is visible directly behind the shell of a connector 18 when mounting said connector 18 to said cable 10 at at least one end thereof. This is shown in Fig. 2.

The connector 18 may be a RG45 or Western connector or a RJ connector. However, other connectors are suitable as well and the invention is not restricted to these connectors.

The connector 18 shown in Fig. 2 is provided with a safety hook 20 which serves to lock the connector in place.

Fig. 3A shows the arrangement of Fig. 2 where a metal grounding 22 has been added to the connector 18.

A strain relief clamp 24, which has naturally been put on the cable 10 before mounting the connector 18, is now arranged on the connector 18 as shown in Fig. 3C. The strain relief clamp 24 may at the same time function as an antikink protective sleeve by means of the antikink component 26.

According to the invention, the strain relief clamp 24 is provided with means for making visible said marking of interest 16 present on the cable 10 after said strain relief clamp 24 has been arranged on the connector 18. This means may be designed as

a rectangular window 28, through which the marking is readable. This is shown in Fig. 4A. In case the marking is comprised not only of a two-digit number but represents a long row of digits or letters (represented by the word „LANSERVER" in Fig. 4B), the strain relief clamp 24 and thus the window 28 in it may be elongated so that even long words are readable.

Fig. 4C represents another embodiment of the invention. Here, the window 28 has been replaced by a transparent ring 30 that is arranged around the strain relief clamp 24. The ring 30 preferably extends 360 degrees around the clamp 24 and may be either tightly connected to the clamp 24 or movably guided within a groove 32 present in the clamp. Another advantageous embodiment may be that only the part of the ring 30 above the marking is transparent, whereas the rest is made of an opaque material.

Of course it is possible and advantageous that the cable 10 is provides with the inventive strain relief clamp 24 at both ends thereof.

Another advantageous embodiment of the present invention provides for an additional coloured marking at one or both ends of the cable 10.

With the device according to the invention it is possible to easily and quickly detect the respective end portions of a cable, even if the cable is located in a bunch together with other cables. Thus, fault analysis is simplified and cable problems can now more easily be solved.

Still another advantage of the present invention concerns prefabricated and marked cables of the type known as patch cable. The manufacturer of such patch cables may use a lasermarker to produce as many patch cables as needed. The cable can be produced according to known procedures and can then be marked without additional effort.

C L A I M S

1. Device for identification marking of cables, especially electric cables (10), being continuously provided with unambiguous markings (12) at least in their end sections (14), wherein said connection is cut such that the marking of interest (16) is visible directly behind the shell of a connector (18) when mounting said connector (18) to said cable at at least one end thereof, and wherein said at least one end is provided with a strain relief clamp (24),

   characterized in that

   said strain relief clamp (24) is provided with means (28, 30, 32) for making visible said marking of interest (16) after said strain relief clamp (24) has been arranged on said connector (18).

2. Device according to claim 1, characterized in that said cable is selected from the group consisting of tubular, round, rectangular and flat cables.

3. Device according to claim 1 or 2, characterized in that said cable is usable for carrying electricity, fluids, gases or air.

4. Device according to any one of claims 1 to 3, characterized in that said strain relief clamp (24) at the same time functions as an antikink protective sleeve.

5. Device according to any one of claims 1 to 4, characterized in that said means is designed in the form of a rectangular window (28).

6. Device according to any one of claims 1 to 4, characterized in that said means is designed in the form of a transparent ring (30).

7. Device according to claim 6, characterized in that said transparent ring (30) is arranged in a groove (32) of said strain relief clamp (24).

8. Device according to claim 6, characterized in that said ring (30) is transparent only in the area of the marking of interest (16).

9. Device according to any one of claims 1 to 8, characterized in that both ends of said cable are provided with a respective connector (18) and a respective strain relief clamp (24).

10. Device according to any one of the preceding claims, characterized in that said cable additionally carries a coloured marking at one or both ends thereof.

11. Strain relief clamp (24) for use with a cable, especially an electric cable, characterized in that it is provided with means (28, 30, 32) for making visible a marking after having been arranged on a connector (18).

12. Method for identification marking of cables, especially an electric cable (10), being continuously provided with unambiguous markings at least in their end sections (14), characterized by the steps of

a) cutting said cable such that the marking of interest is visible directly behind the shell of a connector when mounting said connector to said cable at at least one end thereof; and

b) providing said cable with a strain relief clamp according to claim 10 at at least one end thereof.

LIST OF REFERENCE NUMERALS

10	Cable
12	Markings
14	End Section
16	Marking of Interest
18	Connector
20	Safety Hook
22	Metal Grounding
24	Strain Relief Clamp
26	Antikink Component
28	Window
30	Transparent Ring
32	Groove

A B S T R A C T

A device for identification marking of cables, especially electric cables, being continuously provided with unambiguous markings at least in their end sections is provided. The connection is cut such that the marking of interest is visible directly behind the shell of a connector when mounting said connector to said cable at at least one end thereof, and wherein said at least one end is provided with a strain relief clamp. The strain relief clamp is provided with means for making visible said marking of interest after said strain relief clamp has been arranged on said connector.
(Fig. 4A)

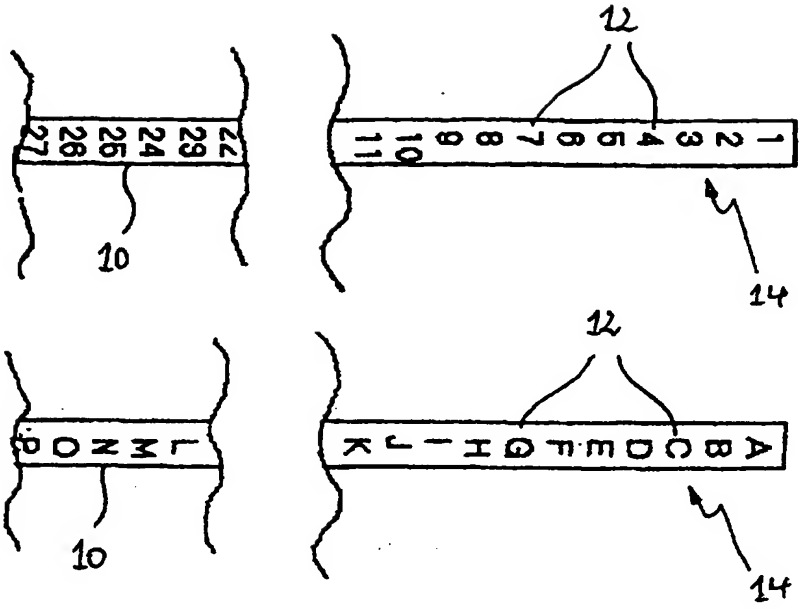

FIG. 1

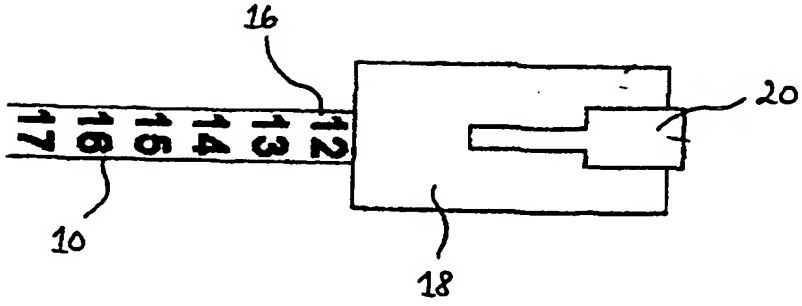

FIG. 2

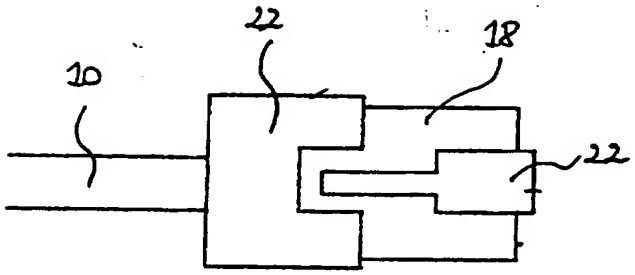

FIG. 3A

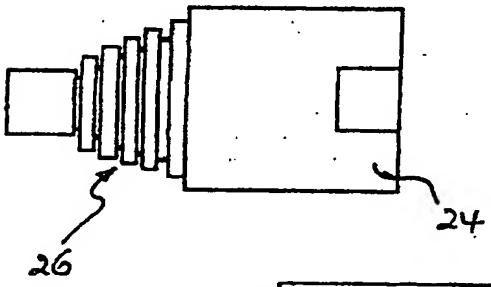

FIG. 3B

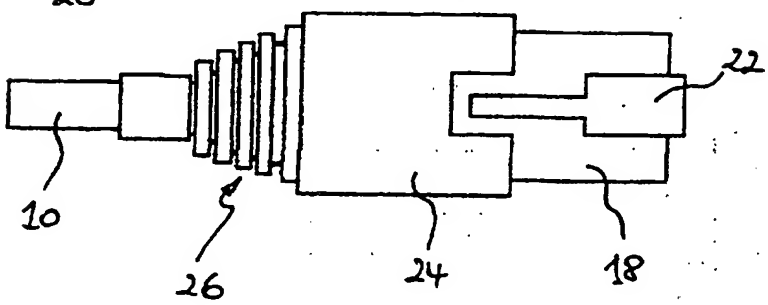

FIG. 3C

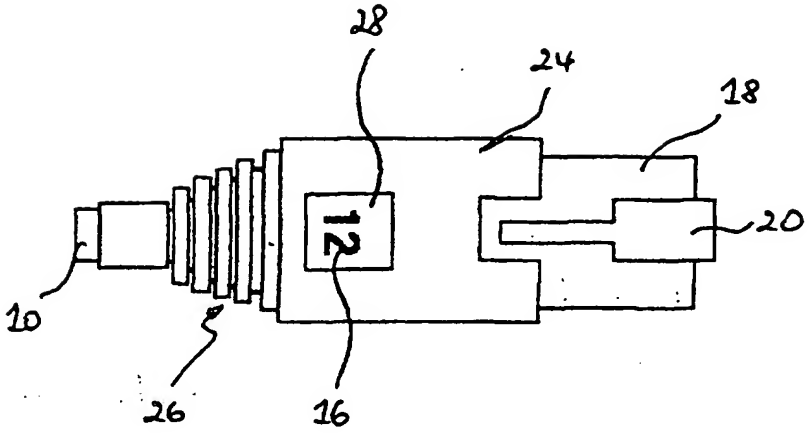

FIG. 4A

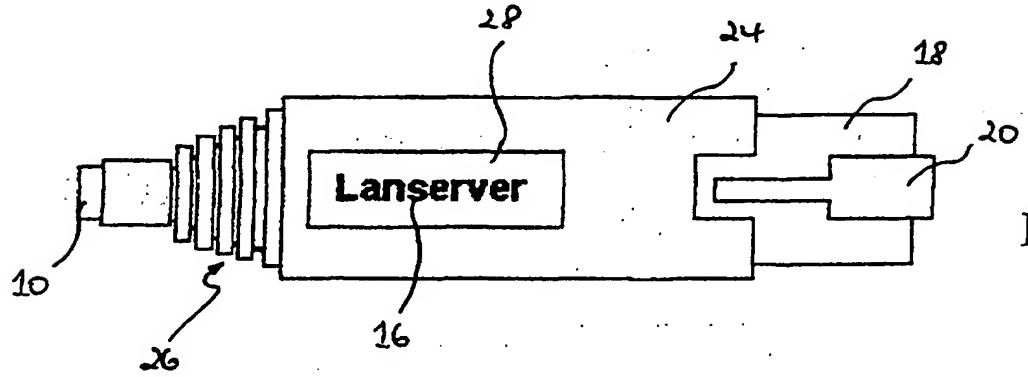

FIG. 4B

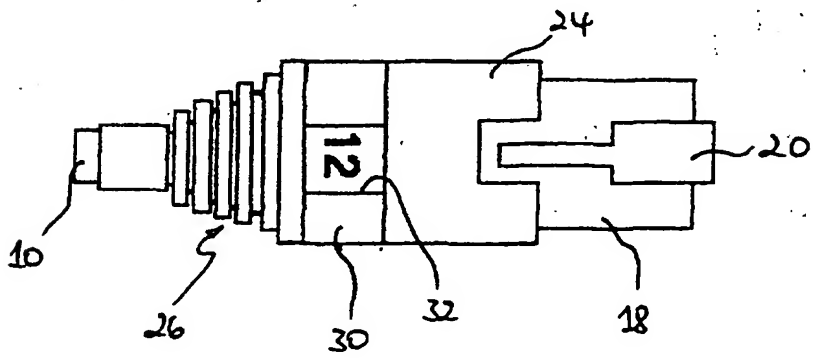

FIG. 4C